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SOIL BORING, SAMPLING AND EXCAVATION

Chevron Service Station #92582
7420 Dublin Boulevard
Dublin, CA

Prepared For

Chevron USA
2410 Camino Ramon
San Ramon, CA

Prepared By

Western Geologic Resources, Inc.
2169 E. Francisco Blvd.
San Rafael, CA

May 1989

WESTERN GEOLOGIC RESOURCES, INC.

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Chevron Service Station #92582
7420 Dublin Boulevard
Dublin, CA

Prepared For

Chevron USA
2410 Camino Ramon
San Ramon, CA

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1. INTRODUCTION

This report describes the work performed by Western Geologic Resources Inc. (WGR) at the Chevron service station in Dublin, California, located at the corner of Dublin Boulevard and Village Parkway. The scope of work for the project included drilling small diameter soil borings and soil sampling and excavation in the vicinity of the former pump island locations (Figure 1).

1.1 Scope of Work

The scope of work for this phase of investigation was:

1.) Drill five small diameter soil borings and collect seventeen soil samples using a Giddings drill rig;

2.) Collect twenty-three soil samples from former product line locations;

3.) Excavate soil and collect confirmatory soil samples from former pump island locations;

4.) Analyze selected soil samples for total petroleum hydrocarbons (TPH) by EPA Method 8015 and aromatic hydrocarbons by EPA Method 8020;

5.) Review all field and laboratory data and prepare a report.

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2. BACKGROUND

On 25 March 1988, EA Engineering, Science and Technology, Inc. conducted a soil vapor survey at the Chevron service station. A total of 15 vapor points were installed and hydrocarbon vapors ranging from non-detectable to 9700 parts per million vapor (ppmv) were detected near the west end of the former pump island location.

On 16 February 1989, three underground storage tanks were removed under the supervision of Blaine Tech Services, Inc. (BTS) of San Jose, California. BTS collected four native soil samples from below the former underground storage tanks and collected a water sample from ponded water within the excavation. The soil and water samples were analyzed by Sequoia Analytical Laboratories by EPA Methods 8015 and 8020. The analytic results for the soil samples indicated concentrations ranging from 1.9 ppm to 29 ppm respectively. The water sample contained low to medium boiling point hydrocarbons at 100 ppm. Based on the hydrocarbon concentrations in both the soil and water samples, WGR was contracted by Chevron to oversee further excavation and proper disposal.

On 14 March 1989, WGR collected six samples from pea gravel backfill material in the former underground storage tank excavation. Based on the concentrations of the pea gravel, it was excavated and separated into two separate stockpiles on 17 March 1989. The pea gravel was separated into Class I and Class II stockpiles.

On 20 March 1989, approximately 18 cubic yards of Class I material was manifested and transported to Casmalia Resources, Inc., in Casmalia, California. On 20 March 1989, approximately 162 cubic yards were transported to McKittrick Landfill a Class II landfill in Bakersfield, California.

During the excavation of the pea gravel, 2846 gallons of water that contained dissolved hydrocarbons was pumped out of the excavation by Erikson Trucking and disposed of at Gibson Oil in Bakersfield, California.

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3. SOIL BORINGS AND ANALYTIC RESULTS

3.1 Soil Borings

On 17 March 1989, five small diameter soil borings B-1 through B-5) were drilled in the vicinity of the former pump island location and the former underground storage tank location. The borings were drilled to depths ranging from 10.5 feet (ft) to 15.5 ft. Soil samples were collected with the Giddings soil sampler at different intervals from 3 ft to 15.5 ft (Figure 2).

3.2 Analytic Results for Soil Borings

The soil samples collected from the soil borings were analyzed onsite by Geotest Laboratories. The samples were analyzed per EPA methods 8015 and 8020. Soil samples analyzed from Boring B-1 at 3.5 ft, 5 ft, 7 ft, and 10 ft indicated low benzene concentrations of 0.24 ppm, 0.43 ppm, 0.13 ppm, and 0.09 ppm, respectively. The remaining hydrocarbon concentrations in B-1 of toluene, xylene, ethylbenzene and TPH were non-detectable. A confirming soil sample was also collected at 15 ft which was non-detectable for aromatic hydrocarbon and TPH concentrations. In boring B-2 soil samples were collected at 4 ft, 6 ft, 10 ft and 15 ft, and the analytic results indicated non-detectable for TPH and aromatic hydrocarbons with the exception of 0.06 ppm benzene which was detected in the 6 ft sample. Boring B-3 was non-detectable for aromatic hydrocarbons and TPH concentrations for samples analyzed at 6 ft and 10 ft below grade. Boring B-4 was sampled at 3.5 ft, 6 ft and 10 ft and low benzene concentrations were found in the 3.5 ft and the 6 ft sample at 0.06 ppm and 0.07 ppm, respectively. All other remaining hydrocarbon concentrations were non-detectable. In Boring B-5 soil samples were collected at 3.5 ft, 6 ft and 10 ft. The analytic results for the sample collected at 3.5 ft were non-detectable for aromatic hydrocarbons and TPH. The soil sample collected at 6 ft indicated aromatic hydrocarbon concentrations of 0.06 ppm benzene, 0.2 ppm toluene, and 0.1 ppm xylene and non-detectable for ethylbenzene and TPH. The sample analyzed at 10 ft indicated 0.9 ppm benzene, 0.4 ppm toluene, 0.09 ppm xylene, and 0.08 ppm ethylbenzene. The 10 ft sample was non-detectable for TPH (Table 1).

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4. SOIL SAMPLING AND ANALYTIC RESULTS

4.1 Soil Sampling

On the 17 and 18 March 1989, a total of twenty-three soil samples were collected from below the former product line locations. The samples were collected per WGR standard operating procedures. Nine sample locations PS-1 through PS-9 were hand augered and soil samples were collected at different depths within the sample locations ranging from 2.5 ft to 10.5 ft below grade (Figure 2).

4.2 Analytic Results for Soil Sampling

Soil samples were collected from nine different locations under the former product line locations (Figure 2). These nine sampling locations were hand augered to different depths in order to define the vertical extent of hydrocarbon contamination. The depths are determined after adding 2 ft to each sample depth because the samples were collected from inside trenches. Four soil samples were collected at depths of 4 ft, 6 ft, 8 ft, and 10 ft at soil sample location PS-1. The PS-1 analytic results for TPH indicated 170 ppm, 190 ppm, 170 ppm, 750 ppm for the above soil samples depths, respectively. Aromatic hydrocarbons were detected in all the soil samples analyzed and the levels ranged from 2.3 ppm benzene to 19 ppm xylene. Soil samples were collected at 4 ft and 6 ft for PS-2 and analytic results for TPH were 6.7 ppm and 41 ppm respectively. The concentration for aromatic hydrocarbons ranged from non-detectable to 1.8 ppm. PS-3 soil sample locations were collected at 4 ft, 6 ft and 8 ft below grade. The aromatic hydrocarbon concentrations ranged from non-detectable to 0.62 ppm and TPH ranged from non-detectable to 1.8 ppm. Soil samples PS-4 through PS-6 were also collected at 4 ft, 6 ft and 8 ft intervals. The aromatic hydrocarbons for these sample locations ranged from non-detectable to 26 ppm. Soil sample locations PS-7 and PS-8 were sampled at 4 ft below grade and the aromatic and TPH concentrations were non-detectable with the exception of 0.06 ppm benzene in PS-8. Soil sample PS-9 was sampled at 2.5 ft, 8.5 ft and 10.5 ft below grade. The aromatic hydrocarbon concentrations ranged from non-detectable to 15 ppm. The TPH concentration for the 2.5 ft sample was 440 ppm and the 8.5 ft sample was 40 ppm and the 10.5 ft sample was non-detectable. The laboratory results are on Table 2 and Attachment C.

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5. EXCAVATION AND CONFIRMATORY SOIL SAMPLING AROUND PUMP ISLAND

5.1 Excavation and Soil Sampling

On 4, 5 and 11 May 1989 WGR geologist Scott Weber supervised soil excavation and soil sampling in the vicinity of PS-1, PS-9 and B-1. In addition, a test pit was excavated north of the pump island north of PS-2 and PS-3 (Figure 3).

In the first two days of excavation approximately 65 cubic yards of soil were removed from the west section of the pump island. On 11 May 1989, approximately an additional 25 cubic yards of soil were removed. Fourteen confirmatory soil samples were collected from the excavations. One soil sample was collected north of the pump island, north of PS-2 and PS-3, and the remaining thirteen samples were collected in the vicinity of PS-1, PS-9 and B-1 (Figure 3).

5.2 Analytic Results of Soil Samples from the Excavation

The soil samples collected on 5 May 1989 in the vicinity of PS-1, PS-9 and B-1 were identified as PS-12 through PS-20. The sample locations and depths were based on photoionization readings (PID). The depths for these confirmatory soil samples ranged from 2.5 ft to 10 ft below grade. The analytic results for TFH's for PS-12 at 6 ft was 110 ppm, PS-13 at 7.5 ft was 16 ppm, PS-14 at 9 ft was 260 ppm, and PS-15 at 4.5 ft was 33 ppm. The above soil samples were collected from the north and northwest side of the southernmost pump island. Soil samples PS-16 through PS-20 were collected from the south and southwest side of the southernmost pump island. The analytic results for TFH's for PS-16 collected at 7.5 ft was 89 ppm, PS-17 at 7.0 ft was 9.5 ppm, PS-18 at 7.5 ft was 5.3 ppm, PS-19 at 6.5 ft was 9.8 ppm and PS-20 at 2.5 ft was 23 ppm.

Based on the hydrocarbon concentrations in PS-12 and PS-14, additional excavation was performed in the vicinity of these soil sample locations on 11 May 1989. The excavation extended in a north direction to a depth of approximately 10 ft below grade. Analytic results for confirmatory soil samples PS-12 at 10 ft was 1100 ppm and PS-14 at 10 ft was 1700 ppm for TFH's. An additional confirmatory soil sample collected further north of PS-12 identified as PS-21 at 20 ft indicated TFH's of 42 ppm.

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6.0 SUMMARY AND CONCLUSIONS

The locations of the soil borings were based on the results of a SVS performed by EA Engineering in February 1988. The analytic results of soil samples collected from the soil borings indicated non-detectable to low concentrations of hydrocarbons. The soil samples collected from the former product line locations indicated hydrocarbon contamination in two soil sample locations. These sample locations were on the north and south side of the southernmost pump island.

Because of samples PS-1 and PS-9 which were above 100 ppm, excavation was initiated in the vicinity of the southern pump island. A total of thirteen confirmatory soil samples were collected in the sidewalls of the excavation. The first round of soil samples were collected on 4 and 5 May 1989 and two samples PS-12 and PS-14 collected at 6 ft and 9 ft indicated hydrocarbon concentrations above 100 ppm, respectively.

Because these two soil samples were above 100 ppm, additional excavation was performed on 11 May 1989. Confirmatory soil samples were collected at deeper depths in the same sample locations which indicated an increase in hydrocarbon concentrations of 1000 ppm.

WGR

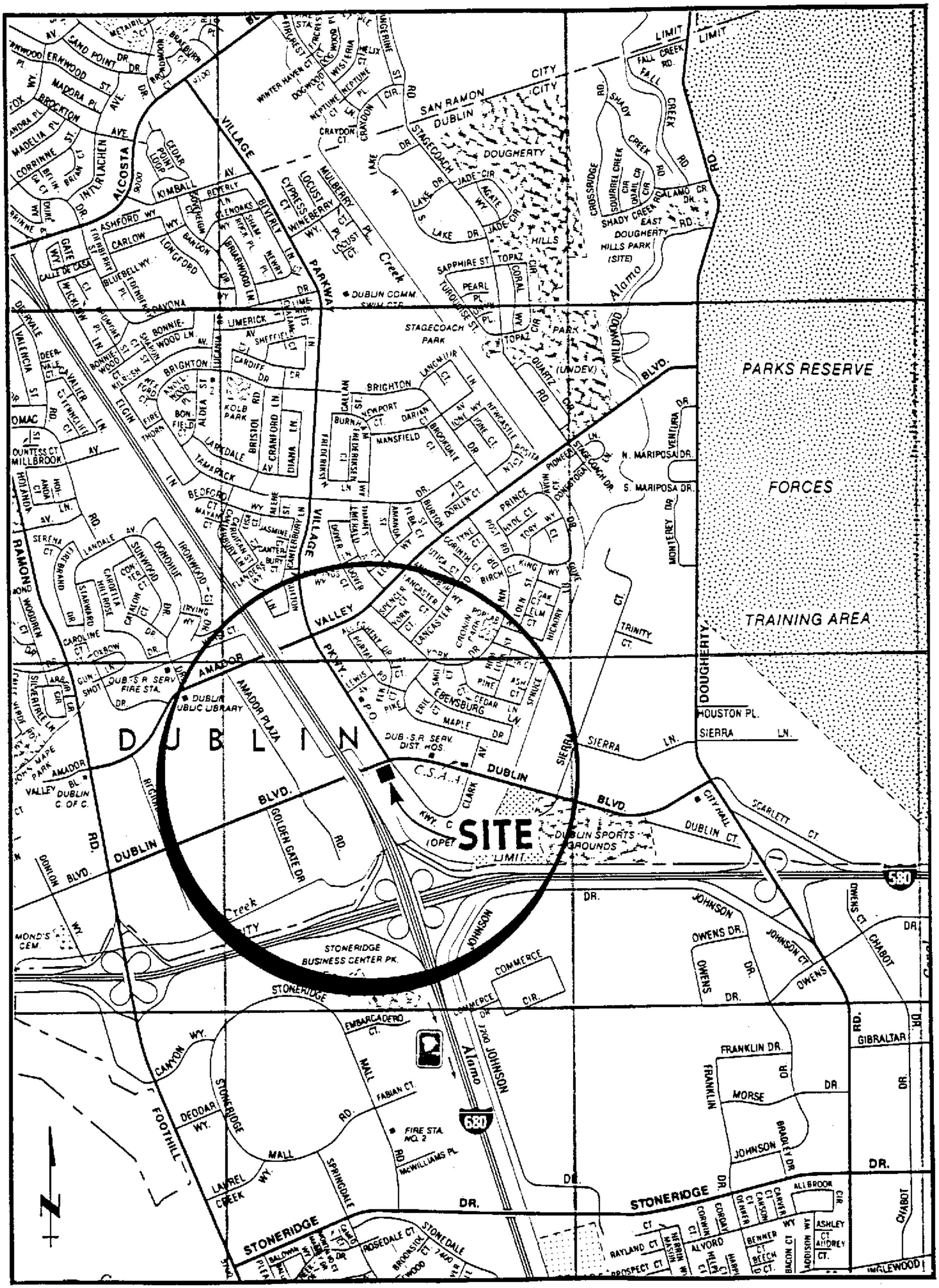

Figure 1. Site Location
Chevron SS #92582, Dublin, California.

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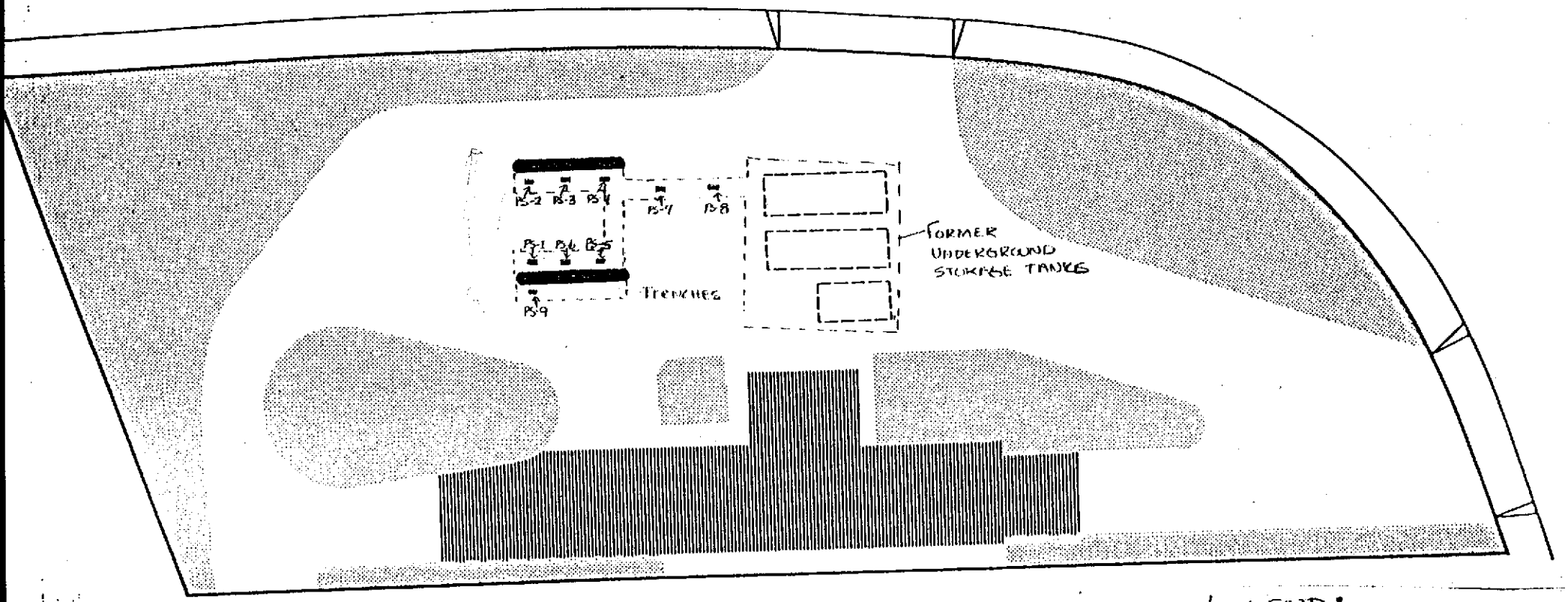

Figure: 2 Soil Sample Location Under Former Product Line Locations
Chevron Service Station # 92582
Dublin, Ca.
WGR # 1-124.02

LEGEND: ■ : Soil Sample Location

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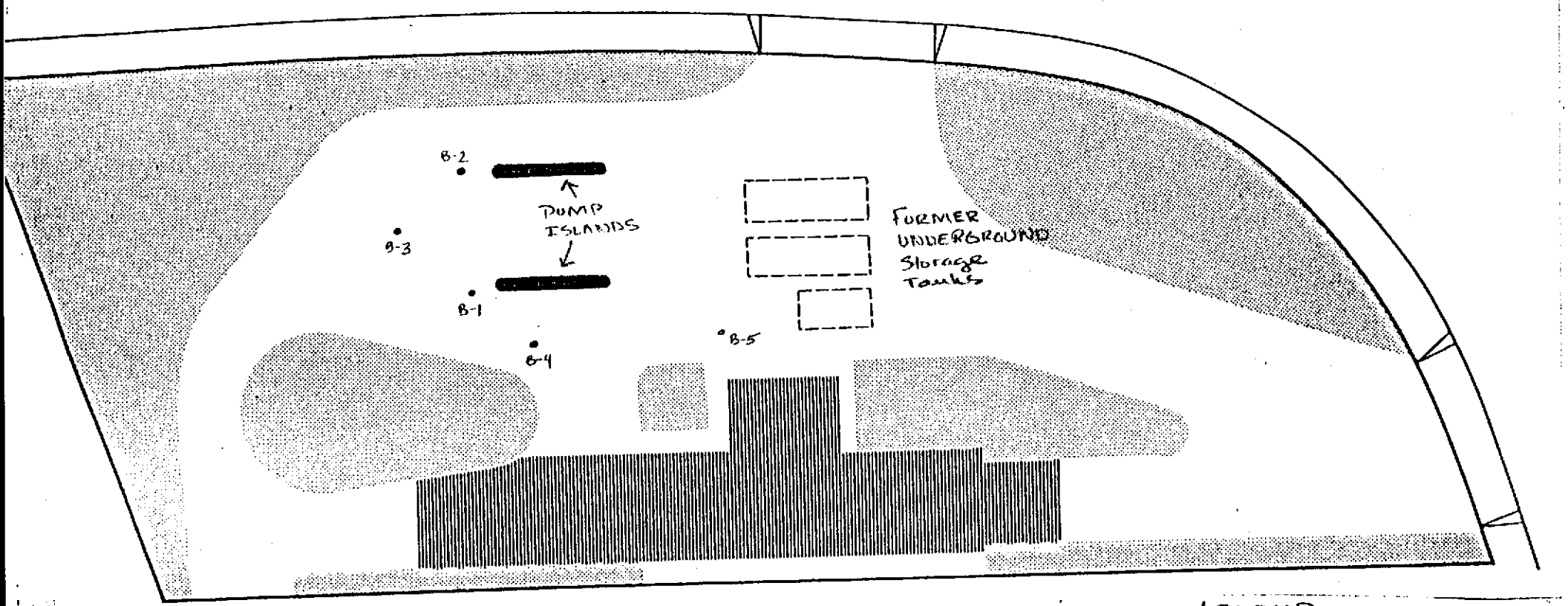

LEGEND
• : Soil Borings

Figure 3 : Soil Boring Location
Chevron Service Station # 92582
Dublin, Ca.
WGR # 1-124.02

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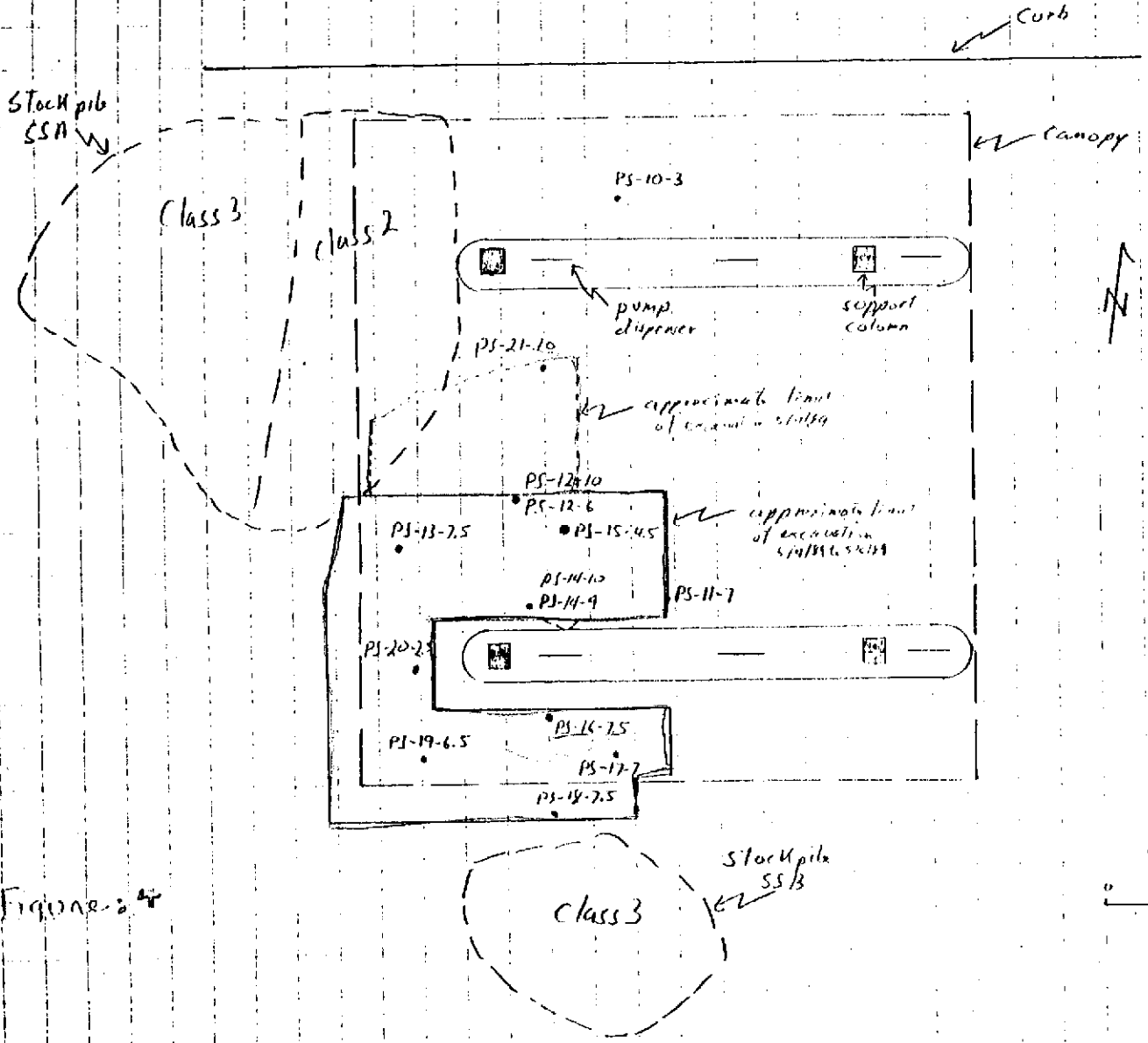

Figure: 4

Chevron - Dublin Blvd. + Village Pkwy
Dublin, CA
Job # 1-124.02
soil excavation + sampling

0 10

5/11/89, SW

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TABLE 1 - ANALYTIC RESULTS: SOIL SAMPLES FROM BORINGS
Chevron Service Station # 92582
Dublin, CA
WGR Project # 1-124.02

SAMPLE ID#	DATE	DEPTH (FT)	BENZENE	TOLUENE	XYLENES	E-BENZENE	TPH
			<----------PPM---------->				
B-1	17 Mar 89	3-4	0.24	ND	ND	ND	ND
B-1	17 Mar 89	4.5-5.5	0.43	ND	ND	ND	ND
B-1	17 Mar 89	6.5-7.5	0.13	ND	ND	ND	ND
B-1	17 Mar 89	9.5-10.5	0.09	ND	ND	ND	ND
B-1	17 Mar 89	14.5-15.5	ND	ND	ND	ND	1.8
B-2	17 Mar 89	3.5-4.5	NA	NA	NA	NA	NA
B-2	17 Mar 89	5.5-6.5	0.06	ND	ND	ND	ND
B-2	17 Mar 89	9.5-10.5	ND	ND	ND	ND	ND
B-2	17 Mar 89	14.5-15.5	ND	ND	ND	ND	ND
B-3	17 Mar 89	5.5-6.5	ND	ND	ND	ND	ND
B-3	18 Mar 89	9.5-10.5	ND	ND	ND	ND	ND
B-4	18 Mar 89	3-4	0.06	ND	ND	ND	ND
B-4	18 Mar 89	5.5-6.5	0.07	ND	ND	ND	ND
B-4	18 Mar 89	9.5-10.5	ND	ND	ND	ND	ND
B-5	18 Mar 89	3-4	ND	ND	ND	ND	ND
B-5	18 Mar 89	5.5-6.5	0.06	0.20	0.10	ND	ND
B-5	18 Mar 89	9.5-10.5	0.9	0.40	0.09	0.08	ND

TPH = Total Petroleum Hydrocarbons
NA = Not Analyzed
ND = Non Detectable (less than 0.5 ppm)

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TABLE 2 - ANALYTIC RESULTS: SOIL SAMPLES
Chevron Service Station # 92582
Dublin, CA
WGR Project # 1-124.02

SAMPLE ID#	DATE	DEPTH (FT)	BENZENE	TOLUENE	XYLENES	E-BENZENE	TPH
			<----------PPM---------->				
PS-1	17 Mar 89:	4	2.4	10.0	5.6	2.9	170
PS-1	17 Mar 89:	6	2.7	11.0	6.3	3.2	190
PS-1	17 Mar 89:	8	4.1	12.0	7.4	3.8	170
PS-1	17 Mar 89:	10	2.3	15.0	19.0	9.5	750
PS-2	18 Mar 89:	4	ND	ND	0.20	0.09	6.7
PS-2	18 Mar 89:	6	0.23	0.47	1.8	0.98	41.0
PS-3	18 Mar 89:	4	0.12	ND	0.04	0.05	ND
PS-3	18 Mar 89:	6	0.51	0.62	0.24	0.18	1.8
PS-3	18 Mar 89:	8	0.21	ND	ND	ND	ND
PS-4	18 Mar 89:	4-4.5	0.18	0.41	0.17	0.11	2.1
PS-4	18 Mar 89:	6-6.5	0.58	0.50	1.0	0.73	16.0
PS-4	18 Mar 89:	8-8.5	ND	ND	ND	ND	ND
PS-5	18 Mar 89:	4-4.5	ND	ND	0.06	ND	3.5
PS-5	18 Mar 89:	6-6.5	0.06	ND	0.32	0.17	9.6
PS-5	18 Mar 89:	8-8.5	ND	ND	ND	ND	ND
PS-6	18 Mar 89:	4-4.5	0.12	ND	0.28	0.12	2.8
PS-6	18 Mar 89:	6-6.5	0.51	ND	2.0	1.0	26.0
PS-6	18 Mar 89:	8	0.14	ND	0.04	0.06	ND

2' HAS BEEN ADDED TO EACH SAMPLE DEPTH.
ALL CONCENTRATIONS ARE REPORTED IN PPM = PARTS-PER-MILLION

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SAMPLE ID#	DATE	DEPTH (FT)	BENZENE	TOLUENE	XYLENES	E-BENZENE	TPH
			<-----PPM----->				
PS-7	18 Mar 89	4-4.5	ND	ND	ND	ND	ND
PS-8	18 Mar 89	4-4.5	0.06	ND	ND	ND	ND
PS-9	18 Mar 89	2-2.5	1.4	5.1	15.0	7.4	440
PS-9	18 Mar 89	8-8.5	0.60	0.31	1.3	1.0	40
PS-9	18 Mar 89	10-10.5	ND	ND	0.05	ND	ND

2' = HAS NOT BEEN ADDED TO THIS SAMPLE BECAUSE THERE IS NO TRENCH AND SAMPLES ARE COLLECTED FROM BELOW ASPHALT SURFACE.

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TABLE 3 - ANALYTIC RESULTS: SOIL SAMPLES
Chevron Service Station # 92582
Dublin, CA
WGR Project # 1-124.02

SAMPLE ID#	DATE	DEPTH (FT)	BENZENE	TOLUENE	XYLENES	E-BENZENE	TPH
			<----------PPM---------->				
PS-10	5 May 89	3	<0.1	<0.1	<0.1	<0.1	<5.0
PS-11	5 May 89	7	0.46	<0.1	1.0	0.61	8.0
PS-12	5 May 89	6	0.6	1.8	22	2.8	110
PS-12	11 May 89	10	10	7.1	110	16	1100
PS-13	5 May 89	7.5	2.7	<0.1	3.2	0.77	16
PS-14	5 May 89	9	8.1	15	25	5.5	260
PS-14	11 May 89	10	20	70	190	32	1700
PS-15	5 May 89	4.5	1.4	0.17	11	1.4	33
PS-16	5 May 89	7.5	5.5	2.5	22	4.7	89
PS-17	5 May 89	7	1.7	1.5	1.8	0.63	9.5
PS-18	5 May 89	7.5	1.5	<0.1	0.53	0.34	5.3
PS-19	5 May 89	6.5	1.4	0.1	1.9	0.58	9.8
PS-20	5 May 89	2.5	2.4	0.21	6.0	1.2	23
PS-21	11 May 89	10	0.8	<0.3	5.4	1.8	42
SSA-1,2	5 May 89	---	<0.1	<0.1	0.46	<0.1	9.5
SSA-3,4	5 May 89	---	0.12	1.4	22	0.38	200
SSB-1,2,3	18 Mar 89	---	0.11	<0.1	2.8	0.41	27

ALL CONCENTRATIONS ARE REPORTED IN PPM = PARTS-PER-MILLION

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APPENDIX A

STANDARD OPERATING PROCEDURES

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WESTERN GEOLOGIC RESOURCES, INC.
STANDARD OPERATING PROCEDURES
RE: SOIL SAMPLING
SOP-2

Soil samples for chemical analysis are collected in thin-walled brass tubes, 4-inches long by 2-inches outside diameter. Four of these tubes and a spacer tube are set in a 2-inch inside diameter 18-inch split-barrel sampler.

The split-barrel sampler is driven its entire length either hydraulically or using a 140-pound drop hammer. The sampler is extracted from the borehole and the brass tubes, containing the soil samples, are removed. Upon removal from the sampler, the selected brass tubes are immediately trimmed and capped with aluminum foil and plastic caps. They are then hermetically sealed with duct tape, labeled and refrigerated for delivery, under chain-of-custody, to the analytic laboratory. These procedures minimize the potential for cross-contamination and volatilization of volatile organic compounds (VOC) prior to chemical analysis.

One soil sample collected at each sampling interval is analyzed in the field using either a photoionization detector (PID), a flame ionizing detector (FID), or an explosimeter. The purpose of this field analysis is to qualitatively determine the presence or absence of hydrocarbons and to establish which soil samples will be analyzed at the laboratory. The soil sample is sealed in a zip-lock plastic bag and placed in the sun to enhance volatilization of the hydrocarbons from the sample. The data is recorded on the drill logs at the depth corresponding to the sampling point.

Other soil samples are collected to document the stratigraphy and estimate relative permeability of the subsurface materials. All drilling and sampling equipment are steam-cleaned prior to use at each site and between boreholes to minimize the potential for cross-contamination.

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APPENDIX B

CHAIN-OF-CUSTODY FORMS

GEOTEST
1860 Obispo Avenue, Suite A
Long Beach, California 90804
Telephone: (213) 498-9515

CHAIN-OF-CUSTODY RECORD

PROJECT NO: 89686-20
DATE 4/17/89 PAGE 1 OF 3

PROJECT NAME Chevron | Dublin
REFERENCE
ADDRESS
SAMPLERS (SIGNATURE) Lee Otis
LABORATORY GEOTEST

SAMPLE NO.	DATE	TIME	LOCATION	PETROLEUM HYDROCARBONS 8015	PETROLEUM HYDROCARBONS 418.1	BTXE (8020/602)	CAC METALS	HALOGENATED VOLATILE ORGANICS 8010					NUMBER OF CONTAINERS	COMMENTS/ CONTAINER TYPE
				METHODS										
B-1 (3'-4')	4/17/89	1105		✓		✓							1	ziploc baggie/soil
B-1 (4.5'-5.5')		1115		✓		✓							1	ziploc/soil
B-1 (6.5'-7.5')		1130		✓		✓							1	"
B-1 (9.5'-10.5')		1145		✓		✓							1	"
B-2 (3'-4')		1200		~~✓~~		~~✓~~		DO	NOT	RUN			1	"
B-2 (5.5'-6.5')		1210		✓		✓							1	"
B-2 (9.5'-10.5')		1215		✓		✓							1	"
B-3 (3'-4')		1225		~~✓~~		~~✓~~		DO	NOT	RUN			1	"
B-3 (5.5'-6.5')		1230		✓		✓							1	"
B-3 (9.5'-10.5')		1240		✓		✓		~~DO~~	~~NOT~~	~~RUN~~			1	ziploc/soil

1 RELINQUISHED BY	DATE	3 RELINQUISHED BY	DATE	5 RELINQUISHED BY	DATE	10	TOTAL NUMBER OF CONTAINERS
SIGNATURE Lee Otis	4/17/89	SIGNATURE		SIGNATURE Kevin McNichol	4/21/89		
PRINTED NAME WGR	TIME 6:50 PM	PRINTED NAME	TIME	PRINTED NAME KEVIN MCNICHOL	TIME 1232	SAMPLE CONDITIONS	
COMPANY		COMPANY		COMPANY GEOTEST		RECEIVED ON ICE	YES / NO
2 RECEIVED BY	DATE	4 RECEIVED BY	DATE	6 RECEIVED BY (LAB)	DATE	SEALED	YES / NO
SIGNATURE Kevin McNichol	4/17/89	SIGNATURE		SIGNATURE Tracy Stivers	4/21/89	SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS:	
PRINTED NAME KEVIN MCNICHOL	TIME 6:55 PM	PRINTED NAME	TIME	PRINTED NAME TRACY STIVERS	TIME 1033	ON SITE ANALYSIS	
COMPANY GEOTEST		COMPANY		COMPANY Geotest			

GEOTEST
1860 Obispo Avenue, Suite A
Long Beach, California 90804
Telephone: (213) 498-9515

CHAIN-OF-CUSTODY RECORD

PROJECT NO: 89686-20
DATE 4/17/89 PAGE 2 OF 3

PROJECT NAME Chevron / Dublin
REFERENCE
ADDRESS
SAMPLERS (SIGNATURE) Lee Otis
LABORATORY GEOTEST

SAMPLE NO.	DATE	TIME	LOCATION	PETROLEUM HYDROCARBONS 8015	PETROLEUM HYDROCARBONS 418.1	BTXE (8020/602)	CAC METALS	HALOGENATED VOLATILE ORGANICS 8010						NUMBER OF CONTAINERS	COMMENTS/ CONTAINER TYPE
B-4 (3'-4')	4/17/89	12:50		✓		✓								1	ziploc / soil
S-1 (2.0')	↓	1:00		✓		✓								1	ziploc / soil
B-4 (5.5'-6.5')		1:10		✓		✓								1	ziploc / soil
B-4 (9.5'-10.5')		1:15		✓		✓								1	ziploc / soil
S-1 (4.0')		1:12		✓		✓								1	ziploc / soil
S-1 (6.0')		1:30		✓		✓								1	Hold - Depending on S-1 (4') results
B-5 (3.0'-4.0')		2:00		✓		✓								1	ziploc / soil
B-5 (5.5'-6.5')		2:15		✓		✓								1	ziploc / soil
B-5 (9.5-10.5')		2:30		✓		✓								1	ziploc / soil
S1 (8')	↓			✓		✓								1	hold (depends on S-1 (6'))

	DATE	TIME
1 RELINQUISHED BY: SIGNATURE Lee Otis; PRINTED NAME WGR Lee Otis; COMPANY	4/17/89	6:45 pm
2 RECEIVED BY: SIGNATURE Kevin McNichol; PRINTED NAME KEVIN MCNICHOL; COMPANY GEO TEST	4/17/89	6:55 pm
3 RELINQUISHED BY: SIGNATURE; PRINTED NAME; COMPANY		
4 RECEIVED BY: SIGNATURE; PRINTED NAME; COMPANY		
5 RELINQUISHED BY: SIGNATURE Kevin McNichol; PRINTED NAME KEVIN MCNICHOL; COMPANY GEOTEST	4/21/89	1233
6 RECEIVED BY (LAB): SIGNATURE Tracy Stivers; PRINTED NAME TRACY Stivers; COMPANY Geotest	4/21/89	12:33

TOTAL NUMBER OF CONTAINERS: 10

SAMPLE CONDITIONS
RECEIVED ON ICE YES / NO (circled: NO)
SEALED YES / NO (circled: NO)

SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS:
ON SITE ANALYSIS

GEOTEST
1860 Obispo Avenue, Suite A
Long Beach, California 90804
Telephone: (213) 498-9515

CHAIN-OF-CUSTODY RECORD

PROJECT NO: 89686-20
DATE 4/17/89 PAGE 3 OF 3

PROJECT NAME Chevron / Dublin
REFERENCE
ADDRESS 2169 E. Francisco Blvd, Ste B
San Rafael, CA. 94901
SAMPLERS (SIGNATURE) Lee Otis
LABORATORY GEOTEST

SAMPLE NO.	DATE	TIME	LOCATION	PETROLEUM HYDROCARBONS 8015	PETROLEUM HYDROCARBONS 418.1	BTXE (8020/602)	CAC METALS	HALOGENATED VOLATILE ORGANICS 8010						NUMBER OF CONTAINERS	COMMENTS/ CONTAINER TYPE
S-2 (2')	4/17/89	4:50 pm.		✓		✓								1	ziploc baggie / soil
S-2 (4')	4/17/89	5:05 pm		✓		✓								1	(hold; depending S-2 (2')
B-1 (14.5-15.5)	4/17/89	5:10 pm		✓		✓								1	ziploc / soil
B-2 (14.5-15.5	4/17/89	5:45 pm		✓		✓								1	ziploc / soil

1 RELINQUISHED BY SIGNATURE Lee Otis; PRINTED NAME Lee Otis; COMPANY WGR	DATE 4/17/89; TIME 6:45 PM	**3 RELINQUISHED BY** SIGNATURE; PRINTED NAME; COMPANY	DATE; TIME	**5 RELINQUISHED BY** SIGNATURE [signature]; PRINTED NAME KEVIN MCNICHOL; COMPANY GEOTEST	DATE 4/21/89; TIME 12:31
2 RECEIVED BY SIGNATURE Kevin McNichol; PRINTED NAME KEVIN MCNICHOL; COMPANY GEOTEST	DATE 4/17/89; TIME 6:55 PM	**4 RECEIVED BY** SIGNATURE; PRINTED NAME; COMPANY	DATE; TIME	**6 RECEIVED BY (LAB)** SIGNATURE Tracy Stivers; PRINTED NAME TRACY Stivers; COMPANY Geotest	DATE 4/21/89; TIME 12:31

TOTAL NUMBER OF CONTAINERS: 4

SAMPLE CONDITIONS

RECEIVED ON ICE YES (NO)
SEALED YES (NO)

SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS:
ON SITE ANALYSIS

GEOTEST
1860 Obispo Avenue, Suite A
Long Beach, California 90804
Telephone: (213) 498-9515

CHAIN-OF-CUSTODY RECORD

PROJECT NO: 84686-20
DATE 4/18/89 PAGE 1 OF 2

PROJECT NAME: Chevron 9-2582
REFERENCE: WGR
ADDRESS: Dublin & Village Parkway, Dublin CA
SAMPLERS (SIGNATURE): David D. Reichard
LABORATORY: GEOTEST

SAMPLE NO.	DATE	TIME	LOCATION	PETROLEUM HYDROCARBONS 8015	PETROLEUM HYDROCARBONS 418.1	BTXE (8020/602)	CAC METALS	HALOGENATED VOLATILE ORGANICS 8010						NUMBER OF CONTAINERS	COMMENTS/ CONTAINER TYPE
PS-3 (4')	4/18/89	8:00		X		X								1	Brass ring / soil
PS-3 (2')	4/18/89	8:00		X		X								1	Brass ring / soil
PS-3 (6-6.5)	4/18/89	8:46		X		X								1	ziploc bagged
PS4 (2-2.5)	4/18/89	9:21		X		X								1	ziploc
PS4 (4-4.5)	4/18/89	9:45		X		X								1	ziploc
PS4 (6-6.5	4/18/89	10:00		X		X								1	ziploc
PS7 (2-2.5)	4/18/89	10:20		X		X								1	ziploc
PS8 (2-2.5)	4/18/89	10:33		X		X								1	ziploc
PS5 (2-2.5)	4/18/89	11:05		X		X								1	ziploc
PS6 (2-2.5)	4/18/89	11:18		X		X								1	ziploc

TOTAL NUMBER OF CONTAINERS: 10

1 RELINQUISHED BY
SIGNATURE: David D. Reichard
PRINTED NAME: DAVID D. REICHARD
COMPANY: WESTERN GEOLOGIC RESOURCES
DATE: 4/18/89
TIME: 17:00

2 RECEIVED BY
SIGNATURE: Kevin McNichol
PRINTED NAME: KEVIN MCNICHOL
COMPANY: GEOTEST
DATE: 4/18/89
TIME: 17:08

3 RELINQUISHED BY
SIGNATURE:
PRINTED NAME:
COMPANY:
DATE:
TIME:

4 RECEIVED BY
SIGNATURE:
PRINTED NAME:
COMPANY:
DATE:
TIME:

5 RELINQUISHED BY
SIGNATURE: Kevin McNichol
PRINTED NAME: KEVIN MCNICHOL
COMPANY: GEOTEST
DATE: 4/21/89
TIME: 12:30

6 RECEIVED BY (LAB)
SIGNATURE: Tracy Stivers
PRINTED NAME: TRACY Stivers
COMPANY: Geotest
DATE: 4/21/89
TIME: 12:34

SAMPLE CONDITIONS
RECEIVED ON ICE: YES / NO (NO circled)
SEALED: YES / NO (NO circled)

SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS:
ON SITE ANALYSIS

GEOTEST
1860 Obispo Avenue, Suite A
Long Beach, California 90804
Telephone: (213) 498-9515

CHAIN-OF-CUSTODY RECORD

PROJECT NO: 8968-20
DATE 4/18/89 PAGE 2 OF 2

PROJECT NAME: Chevron 9-2582
REFERENCE: Western G R
ADDRESS: Dublin + Village Parkway Dublin CA.
SAMPLERS (SIGNATURE): David D. Reichard
LABORATORY: GEOTEST

SAMPLE NO.	DATE	TIME	LOCATION	METHODS: PETROLEUM HYDROCARBONS 8015	PETROLEUM HYDROCARBONS 418.1	BTXE (8020/602)	CAC METALS	HALOGENATED VOLATILE ORGANICS 8010					NUMBER OF CONTAINERS	COMMENTS/ CONTAINER TYPE
PS5(4-4.5)	4/18/89	12:18		X		X							1	ziploc baggie soil
PS6(4-4.5)	4/18/89	12:20		X		X							1	ziploc / soil
PS9(2-2.5)	4/18/89	12:45		X		X							1	ziploc / soil
PS9(4-4.5)	4/18/89	13:33		X		X	DO	NOT	RUN				1	ziploc / soil
PS9(6-6.5)	4/18/89	13:42		X		X	DO	NOT	RUN				1	ziploc / soil
PS9(8-8.5')	4/18/89	14:21		X		X							1	ziploc / soil
PS9(10-10.5	4/18/89	15:30		X		X							1	ziploc / soil
PS6(6')	4/18/89	15:49		X		X							1	ziploc / soil
PS5(6')	4/18/89	16:15		X		X							1	ziploc / soil

1 RELINQUISHED BY: David E. Reichard	DATE: 4/18/89	3 RELINQUISHED BY	DATE	5 RELINQUISHED BY: Kevin McNichol	DATE: 4/21/89	9	TOTAL NUMBER OF CONTAINERS	
SIGNATURE		SIGNATURE		SIGNATURE				
PRINTED NAME: Western Geologic	TIME: 17:05	PRINTED NAME	TIME	PRINTED NAME: GEOTEST	TIME: 12:25		SAMPLE CONDITIONS	
COMPANY		COMPANY		COMPANY			RECEIVED ON ICE: YES (NO)	
2 RECEIVED BY: Kevin McNichol	DATE: 4/18/89	4 RECEIVED BY	DATE	6 RECEIVED BY (LAB): Tracy Stivers	DATE: 4/21/89		SEALED: YES (NO)	
SIGNATURE		SIGNATURE		SIGNATURE				
PRINTED NAME: KEVIN McNICHOL	TIME: 17:08	PRINTED NAME	TIME	PRINTED NAME: TRACY STIVERS	TIME: 1120		SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS: ON SITE ANALYSIS	
COMPANY: GEOTEST		COMPANY		COMPANY: Geotest				

GEOTEST
An Environmental Monitoring and Testing Service

Post Office Box 90911, Long Beach, California 90809-0911 (213) 498-9515 (800) 624-5744

LABORATORY REPORT

CHEVRON	DATE RECEIVED:	04-18-89
2410 CAMINO RAMON	DATE ANALYZED:	04-19-89
SAN RAMON, CALIFORNIA 94583-0804	SAMPLE MATRIX:	SOIL
	CLIENT ID:	
	GEOTEST PROJECT NO.:	89686-20
ATTENTION: BOB FOSS	ANALYSES:	MODIFIED 8015

PROJECT NAME: CHEVRON #9-2582
LOCATION: DUBLIN RD. & VILLAGE PARK WAY
DUBLIN, CALIFORNIA

ANALYSIS OF HYDROCARBON CONTENT BY GAS CHROMATOGRAPHY EPA METHOD MODIFIED 8015

SAMPLE ID	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
PS-3 (4')	1.8	1.0
PS-3 (2')	ND	1.0
PS-3 (6-6.5)	ND	1.0
PS-4 (2-2.5)	2.1	1.0
PS-4 (4-4.5)	16	1.0
PS-4 (6-6.5)	ND	1.0
PS-7 (2-2.5)	ND	1.0
PS-8 (2-2.5)	ND	1.0
PS-5 (2-2.5)	3.5	1.0
PS-6 (2-2.5)	2.8	1.0

ND - Not detected below indicated limit of detection.

Analyst: KM

Checked and Approved: _____
Report Date: 04/24/89

GEOTEST
An Environmental Monitoring and Testing Service

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LABORATORY REPORT

CHEVRON
2410 CAMINO RAMON
SAN RAMON, CALIFORNIA
94583-0804

ATTENTION: BOB FOSS

DATE RECEIVED: 04-18-89
DATE ANALYZED: 04-18-89
SAMPLE MATRIX: SOIL
CLIENT ID:
GEOTEST PROJECT NO.: 89686-20
ANALYSES: MODIFIED 8015

PROJECT NAME: CHEVRON #9-2582
LOCATION: DUBLIN RD. & VILLAGE PARK WAY
DUBLIN, CALIFORNIA

ANALYSIS OF HYDROCARBON CONTENT BY GAS CHROMATOGRAPHY
EPA METHOD MODIFIED 8015

SAMPLE ID	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
PS-5 (4-4.5)	9.6	1.0
PS-6 (4-4.5)	26	1.0
PS-9 (2-2.5)	440	1.0
PS-9 (8-8.5)	40	1.0
PS-9 (10-10.5)	ND	1.0
PS-5 (5')	ND	1.0
PS-5 (5')	ND	1.0

ND - Not detected below indicated limit of detection.

Analyst: KM

Checked and Approved: _____
Report Date: 04/29/89

GEOTEST
An Environmental Monitoring and Testing Service

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LABORATORY REPORT

CHEVRON
2410 CAMINO RAMON
SAN RAMON, CALIFORNIA
94583-0804

ATTENTION: BOB FOSS

DATE RECEIVED: 04-18-89
DATE ANALYZED: 04-18-89
SAMPLE MATRIX: SOIL
CLIENT ID:
GEOTEST PROJECT NO.: 89586-20
ANALYSES: BTXE

PROJECT NAME: CHEVRON #9-2582
LOCATION: DUBLIN RD. & VILLAGE PARK WAY
DUBLIN, CALIFORNIA

ANALYSIS OF ORGANIC VOLATILE AROMATICS
EPA METHOD 8020

COMPONENTS	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES
DETECTION LIMITS	(mg/kg) .01	(mg/kg) .02	(mg/kg) .02	(mg/kg) .02
SAMPLE ID				
PS-5 (4-4.5)	0.06	ND	0.17	0.32
PS-6 (4-4.5)	0.51	ND	1.0	2.0
PS-9 (2-2.5)	1.4	5.1	7.4	15
PS-9 (8-8.5)	0.60	0.31	1.0	1.3
PS-9 (10-10.5)	ND	ND	ND	0.05
PS-6 (5')	0.14	ND	0.06	0.04
PS-5 (6')	ND	ND	ND	ND

ND - Not detected below indicated limit of detection.

Analyst: KM

Checked and Approved: _____
Report Date: 04/24/89

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed.

GEOTEST
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LABORATORY REPORT

CHEVRON
2410 CAMINO RAMON
SAN RAMON, CALIFORNIA
94583-0804

ATTENTION: BOB FOSS

DATE RECEIVED: 04-18-89
DATE ANALYZED: 04-18-89
SAMPLE MATRIX: SOIL
CLIENT ID:
GEOTEST PROJECT NO.: 89526-20
ANALYSES: BTXE

PROJECT NAME: CHEVRON #9-2582
LOCATION: DUBLIN RD. & VILLAGE PARK WAY
DUBLIN, CALIFORNIA

ANALYSIS OF ORGANIC VOLATILE AROMATICS
EPA METHOD 8020

COMPONENTS	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES
DETECTION LIMITS	(mg/kg) .01	(mg/kg) .02	(mg/kg) .02	(mg/kg) .02
SAMPLE ID				
PS-3 (4')	0.51	0.62	0.18	0.24
PS-3 (2')	0.12	ND	0.05	0.04
PS-3 (5-6.5)	0.21	ND	ND	ND
PS-4 (2-2.5)	0.18	0.41	0.11	0.17
PS-4 (4-4.5)	0.58	0.50	0.73	1.0
PS-4 (5-6.5)	ND	ND	ND	ND
PS-7 (2-2.5)	ND	ND	ND	ND
PS-8 (2-2.5)	0.06	ND	ND	ND
PS-5 (2-2.5)	ND	ND	ND	0.06
PS-5 (2-2.5)	0.12	ND	0.12	0.28

ND - Not detected below indicated limit of detection.

Analyst: KM

Checked and Approved: _____
Report Date: 04/24/89

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GEOTEST
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LABORATORY REPORT

CHEVRON		DATE RECEIVED:	04-17-89
2410 CAMINO RAMON		DATE ANALYZED:	04-17,18-89
SAN RAMON, CALIFORNIA		SAMPLE MATRIX:	SOIL
	94583-0804	CLIENT ID:	
		GEOTEST PROJECT NO.:	89686-20
ATTENTION:	BOB FOSS	ANALYSES:	MODIFIED 8015

PROJECT NAME: CHEVRON #9-2582
LOCATION: DUBLIN RD. & VILLAGE PARK WAY
DUBLIN, CALIFORNIA

ANALYSIS OF HYDROCARBON CONTENT BY GAS CHROMATOGRAPHY
EPA METHOD MODIFIED 8015

SAMPLE ID	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
B-1 (3'-4')	ND	1.0
B-1 (4.5'-5.5')	ND	1.0
B-1 (6.5'-7.5')	ND	1.0
B-1 (9.5'-10.5')	ND	1.0
B-2 (5.5'-6.5')	ND	1.0
B-2 (9.5'-10.5')	ND	1.0
B-3 (5.5'-6.5')	ND	1.0
B-3 (9.5'-10.5')	ND	1.0
B-4 (3'-4')	ND	1.0
PS-1 (2.0')	170	1.0
B-4 (5.5'-6.5')	ND	1.0
B-4 (9.5'-10.5')	ND	1.0

ND - Not detected below indicated limit of detection.

Analyst: KM

Checked and Approved: _____
Report Date: 04/24/89

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GEOTEST
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L A B O R A T O R Y R E P O R T

CHEVRON	DATE RECEIVED:	04-17-89
2410 CAMINO RAMON	DATE ANALYZED:	04-17,18-89
SAN RAMON, CALIFORNIA 94583-0804	SAMPLE MATRIX:	SOIL
	CLIENT ID:	
	GEOTEST PROJECT NO.:	89686-30
ATTENTION: BOB FOSS	ANALYSES:	MODIFIED 8015

PROJECT NAME: CHEVRON #9-2582
LOCATION: DUBLIN RD. & VILLAGE PARK WAY
DUBLIN, CALIFORNIA

ANALYSIS OF HYDROCARBON CONTENT BY GAS CHROMATOGRAPHY
EPA METHOD MODIFIED 8015

SAMPLE ID	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
PS-1 (4.0')	190	1.0
PS-1 (6.0')	170	1.0
B-5 (3.0'-4.0')	ND	1.0
B-5 (5.5'-6.5')	ND	1.0
B-5 (9.5'-10.5')	ND	1.0
PS-1 (8')	750	1.0
PS-2 (2')	6.7	1.0
PS-2 (4')	41	1.0
B-1 (14.5-15.5)	1.8	1.0
B-2 (14.5-15.5)	ND	1.0

ND - Not detected below indicated limit of detection.

Analyst: KM

Checked and Approved: _____
Report Date: 04/24/89

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GEOTEST
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LABORATORY REPORT

CHEVRON
2410 CAMINO RAMON
SAN RAMON, CALIFORNIA
94583-0804

ATTENTION: BOB FOSS

DATE RECEIVED: 04-17-89
DATE ANALYZED: 04-17,18-89
SAMPLE MATRIX: SOIL
CLIENT ID:
GEOTEST PROJECT NO.: 89686-20
ANALYSES: BTXE

PROJECT NAME: CHEVRON #9-2582
LOCATION: DUBLIN RD. & VILLAGE PARK WAY
DUBLIN, CALIFORNIA

ANALYSIS OF ORGANIC VOLATILE AROMATICS
EPA METHOD 8020

COMPONENTS	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES
DETECTION LIMITS	(mg/kg) .01	(mg/kg) .02	(mg/kg) .02	(mg/kg) .02
SAMPLE ID				
B-1 (3'-4')	0.24	ND	ND	ND
B-1 (4.5'-5.5')	0.43	ND	ND	ND
B-1 (6.5'-7.5')	0.13	ND	ND	ND
B-1 (9.5'-10.5')	0.09	ND	ND	ND
B-2 (5.5'-6.5')	0.06	ND	ND	ND
B-2 (9.5'-10.5')	ND	ND	ND	ND
B-3 (5.5'-6.5')	ND	ND	ND	ND
B-3 (9.5'-10.5')	ND	ND	ND	ND
B-4 (3'-4')	0.06	ND	ND	ND
PS-1 (2.0')	2.4	10	2.9	5.6
B-4 (5.5'-6.5')	0.07	ND	ND	ND
B-4 (9.5'-10.5')	ND	ND	ND	ND

ND - Not detected below indicated limit of detection.

Analyst: KM

Checked and Approved: _____
Report Date: 04/24/89

GEOTEST
An Environmental Monitoring and Testing Service

Post Office Box 90911, Long Beach, California 90809-0911 (213) 498-9515 (800) 624-5744

LABORATORY REPORT

CHEVRON
2410 CAMINO RAMON
SAN RAMON, CALIFORNIA
94583-0804

ATTENTION: BOB FOSS

DATE RECEIVED: 04-17-89
DATE ANALYZED: 04-17,18-89
SAMPLE MATRIX: SOIL
CLIENT ID:
GEOTEST PROJECT NO.: 89586-20
ANALYSES: BTXE

PROJECT NAME: CHEVRON #9-2582
LOCATION: DUBLIN RD. & VILLAGE PARK WAY
DUBLIN, CALIFORNIA

ANALYSIS OF ORGANIC VOLATILE AROMATICS
EPA METHOD 8020

COMPONENTS	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES
DETECTION LIMITS	(mg/kg) .01	(mg/kg) .02	(mg/kg) .02	(mg/kg) .02
SAMPLE ID				
PS-1 (4.0')	2.7	11	3.2	6.3
PS-1 (6.0')	4.1	12	3.8	7.4
B-5 (3.0'-4.0')	ND	ND	ND	ND
B-5 (5.5'-6.5')	0.06	0.2	ND	0.10
B-5 (9.5'-10.5')	0.9	0.40	0.08	0.09
PS-1 (8')	2.3	15	9.5	19
PS-2 (2')	ND	ND	0.09	0.20
PS-2 (4')	0.23	0.47	0.98	1.8
B-1 (14.5'-15.5')	ND	ND	ND	ND
B-2 (14.5'-15.5')	ND	ND	ND	ND

ND - Not detected below indicated limit of detection.

Analyst: KM

Checked and Approved: _____
Report Date: 04/24/89

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed.

BROWN AND CALDWELL LABORATORIES

1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E89-05-215

Received: 05 MAY 89
Reported: 15 MAY 89

Ms. Lee Otis
Western Geologic Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901

Project: 1-124.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-215-1	SSA-1,2	05 MAY 89
05-215-2	SSA-3,4	05 MAY 89
05-215-3	SSB-1,2,3	05 MAY 89

PARAMETER	05-215-1	05-215-2	05-215-3
TPH-Volatile Hydrocarbons/BTEX			
Date Analyzed	05.08.89	05.08.89	05.08.89
Dilution Factor, Times	1	1	1
Benzene, mg/kg	<0.1	0.12	0.11
Ethylbenzene, mg/kg	<0.1	0.38	0.41
Toluene, mg/kg	<0.1	1.4	<0.1
Total Xylene Isomers, mg/kg	0.46	22	2.8
C4 to C12 Hydrocarbons, mg/kg	9.5	200	27
Other TPH-Volatile Hydrocarbons/BTEX	---	---	---

This report includes all data reported by facsimile to L. Otis on 5/9/89 C.Ho
This fuel characterization is a qualitative identification based upon a visual comparison of sample chromatograms with those from authentic standards.

S. D. Lessley

Sim D. Lessley, Ph.D., Laboratory Director

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E89-05-213

Received: 05 MAY 89
Reported: 16 MAY 89

Ms. Lee Otis
Western Geologic Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901

Project: 1-124.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-213-6	PS-15-4.5	05 MAY 89
05-213-7	PS-16-7.5	05 MAY 89
05-213-8	PS-17-7.0	05 MAY 89
05-213-9	PS-18-7.5	05 MAY 89
05-213-10	PS-19-6.5	05 MAY 89

PARAMETER	05-213-6	05-213-7	05-213-8	05-213-9	05-213-10
TPH-Volatile Hydrocarbons/BTEX					
Date Analyzed	05.05.89	05.05.89	05.05.89	05.05.89	05.05.89
Dilution Factor, Times	1	1	1	1	1
Benzene, mg/kg	1.4	5.5	1.7	1.5	1.4
Ethylbenzene, mg/kg	1.4	4.7	0.63	0.34	0.58
Toluene, mg/kg	0.17	2.5	1.5	<0.1	0.10
Total Xylene Isomers, mg/kg	11	22	1.8	0.53	1.9
C4 to C12 Hydrocarbons, mg/kg	33	89	9.5	5.3	9.8
Other TPH-Volatile Hydrocarbons/BTEX	---	---	---	---	---

This fuel characterization is a qualitative identification based upon a visual comparison of sample chromatograms iwth those from authentic standards.

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E89-05-213

Received: 05 MAY 89
Reported: 16 MAY 89

Ms. Lee Otis
Western Geologic Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901

Project: 1-124.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-213-11	PS-20-2.5	05 MAY 89

PARAMETER	05-213-11
TPH-Volatile Hydrocarbons/BTEX	
Date Analyzed	05.05.89
Dilution Factor, Times	1
Benzene, mg/kg	2.4
Ethylbenzene, mg/kg	1.2
Toluene, mg/kg	0.21
Total Xylene Isomers, mg/kg	6.0
C4 to C12 Hydrocarbons, mg/kg	23
Other TPH-Volatile Hydrocarbons/BTEX	---

This report includes all data reported verbally to L. Otis on 5/8/89 C. Ho
This fuel characterization is a qualitative identification based upon a visual comparison of sample chromatograms with those from authentic standards.

Sim D. Lessley, Ph.D., Laboratory Director

BROWN AND CALDWELL LABORATORIES

1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E89-05-213

Received: 05 MAY 89
Reported: 16 MAY 89

Ms. Lee Otis
Western Geologic Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901

Project: 1-124.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-213-1	PS-10-3	04 MAY 89
05-213-2	PS-11-7.0	04 MAY 89
05-213-3	PS-12-6.0	05 MAY 89
05-213-4	PS-13-7.5	05 MAY 89
05-213-5	PS-14-9.0	05 MAY 89

PARAMETER	05-213-1	05-213-2	05-213-3	05-213-4	05-213-5
TPH-Volatile Hydrocarbons/BTEX					
Date Analyzed	05.05.89	05.05.89	05.05.89	05.05.89	05.05.89
Dilution Factor, Times	1	1	1	1	1
Benzene, mg/kg	<0.1	0.46	0.60	2.7	8.1
Ethylbenzene, mg/kg	<0.1	0.61	2.8	0.77	5.5
Toluene, mg/kg	<0.1	<0.1	1.8	<0.1	15
Total Xylene Isomers, mg/kg	<0.1	1.0	22	3.2	25
C4 to C12 Hydrocarbons, mg/kg	<5.0	8.0	110	16	260
Other TPH-Volatile Hydrocarbons/BTEX	---	---	---	---	---

This fuel characterization is a qualitative identification based upon visual comparison of sample chromatograms with those from authentic standards.

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ANALYTICAL REPORT

LOG NO: E89-05-374

Received: 11 MAY 89
Reported: 16 MAY 89

Ms. Lee Otis
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Project: 1-124.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
05-374-1	PS-12-10	11 MAY 89
05-374-2	PS-14-10	11 MAY 89
05-374-3	PS-21-10	11 MAY 89

PARAMETER	05-374-1	05-374-2	05-374-3
TPH and BTEX - Modified 8015			
Date Analyzed	05.11.89	05.11.89	05.11.89
Dilution Factor, Times	1	1	1
Benzene, mg/kg	10	20	0.8
Ethylbenzene, mg/kg	16	32	1.8
Toluene, mg/kg	7.1	70	<0.3
Total Xylene Isomers, mg/kg	110	190	5.4
Total Fuel Hydrocarbons, mg/kg	1100	1700	42
Fuel Characterization, .	GAS	GAS	GAS

This report includes all data reported by facsimile to L. Otis on 5/16/89 C.Ho

This fuel characterization is a qualitative identification based upon a visual comparison of sample chromatograms with those from authentic standards.

S. D. Lessley

Sim D. Lessley, Ph.D., Laboratory Director